23. (Cancelled, without prejudice)

24. (Cancelled, without prejudice)

REMARKS

Applicant has amended claims 1, 3, 5-7, 11, 19, and 20 and has cancelled claims 4, 8-10, 12, and 22-24, without prejudice. As such claims 1-3, 5-7, 11, 13, 16, and 19-21 remain pending.

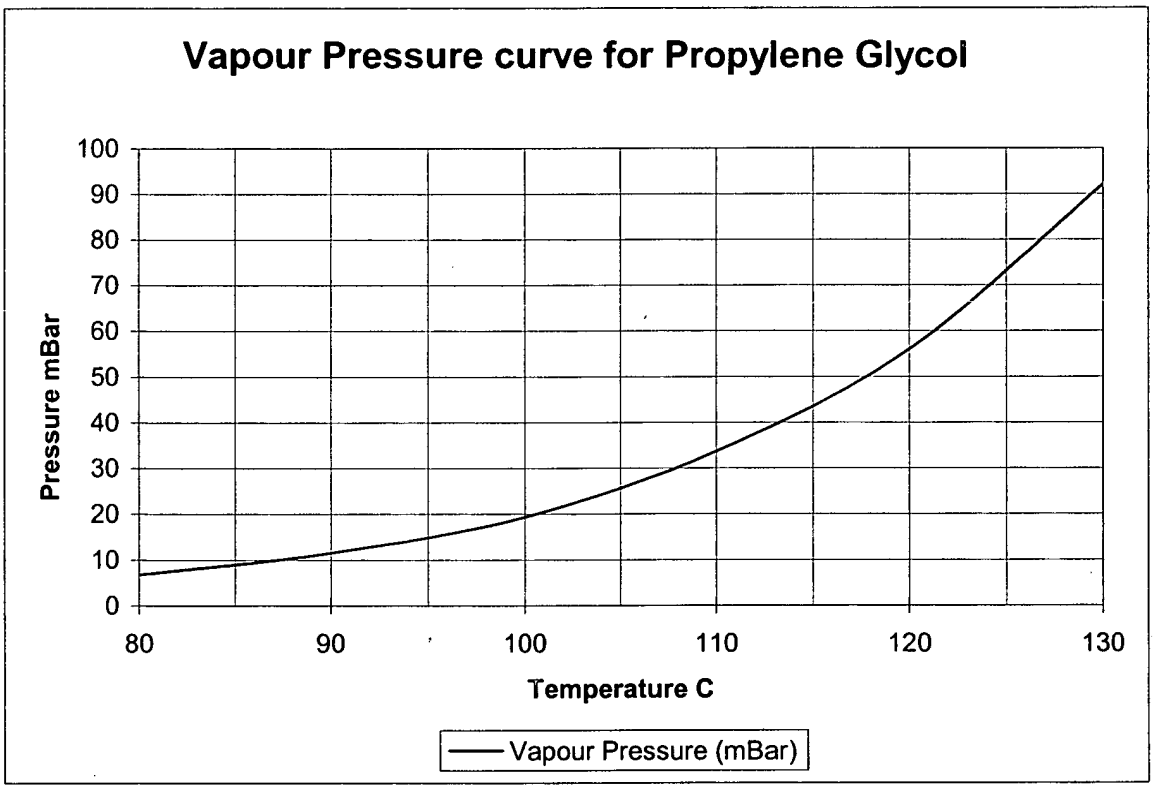
In view of the amendments made to the claims, the rejections of the claims 1-3, 5-7, 11, 13, 16, 19, and 21 as being indefinite under §112 are now moot. Regarding claim 20, Applicant hereby states for the record that the Examiner is correct in that the kit of claim 20 does not comprise a boat hull. However, Applicant notes that the Board of Patent Appeals and Interferences has held that a claim reciting "***adapted*** for application to the human skin .... imposes a limitation in the claims that can not be ignored in considering the patentability of the claims". Ex Parte Conner, 215 USPQ 384, (B.P.A.I. 1981); *see also*, In re Venezia, 189 USPQ 149,151, 530 F.2d 956 (CCPA 1976) (the court holding that the term adapted imparts structural limitations rather than merely directing activities to take place in the future). Thus, the recitations in the claims pertaining to various elements of the kit being ***adapted*** for use in connection with a boat hull can not be ignored. Thus, Applicant respectfully request reconsideration and withdrawal of the rejection of claim 20 as being indefinite under §112

In regard to the rejections under 35 USC §§102 and 103, Applicant respectfully submits that all pending claims are allowable over the prior art and submits the following arguments in support thereof.

Claims 1-3 And 5-7 Are Neither Anticipated By Nor Obvious In View Of The Prior Art

As amended, Claim 1 is limited to a method of surface treatment of a glassfibre product that includes, among other limitations, a partial vacuum having a pressure of between 2 and 5 mb Abs. Such a partial vacuum is considered a "hard" vacuum since atmospheric pressure is 1000mb and thus a pressure between 5-2mb is very nearly a complete vacuum. In contrast, the vacuum achieved in the cited McBroom reference (EP 0839635) is only a "75% vacuum" (column 8, line 49), which equates to 250mb. Applicant respectfully submits that such a difference in vacuum pressure is not merely a design choice, but rather a result of entirely different purposes behind the disclosed inventions. Like numerous other prior art references,

the vacuum in McBroom is intended to extract gas and air bubbles from beneath a patch that is being applied to a composite object. In contrast, the present invention is aimed at vaporising unreacted chemicals (in particular glycols and organic acids) from within the structure the composite itself. The following graph is a vapor pressure curve for propylene glycol between the temperatures of 80°C and 130°C.



As can be seen, the vapor pressure for propylene glycol is between 0mb and 100mb throughout such temperature range (i.e. one tenth of atmospheric pressure). At lower pressures, this material (which is a typical material found unreacted in glass fibre structures) exists in a vapor state. Thus, at temperatures between 80 and 90°C, glycol is in the vapor state only when the pressure is below approximately 10mb. Hence, the treatment method requires a very low pressure to achieve vaporization, and therefore extraction, of such unreacted materials.

At the pressure of 250mb, such as that disclosed as being used in the McBroom reference, an extremely high temperature would have to be achieved to vaporize these compounds. Simply put, such high temperatures would destroy the structure being treated. Moreover, the hardware required to reach a partial pressures of only 2-5mb is entirely different (far more substantial and certainly more expensive) than the hardware required to reach a partial pressure of only 250mb. To this end, the designer of any piece of vacuum equipment will have regard to the level of vacuum which he needs to achieve. Higher vacuums (lower

pressures) involve greater costs of equipment, both in terms of pumps and of connections to and from the pump and indeed of the safety equipment required when working at extremely low pressures. Selecting particular pressure levels is not therefore arbitrary because it does carry with it significant cost implications for the designer. Thus, Applicant respectfully submits that the Office Action's submission that the apparatus disclosed in the McBroom reference would be capable of maintaining a vacuum as claimed, is unfounded. Yet further, because the purpose and results of achieving the low vacuum pressures are not disclosed in the McBroom reference, it would not be obvious for one skilled in the art, at the time the invention was made, to modify the method disclosed in the McBroom reference in a manner such that it reads upon Claim 1. For these reasons, Applicant respectfully submits that Claim 1 is neither anticipated nor obvious in view of the prior art. It follows then that Claims 2, 3, and 5-7, being dependent upon Claim 1, are also neither anticipated by nor obvious in view of the prior art.

Claims 11, 13, And 16 Are Neither Anticipated By Nor Obvious In View Of The Prior Art

Like Claim 1, independent Claim 11 requires, among other things, a partial vacuum having a pressure of between 2 and 5 mb Abs. Thus, for the reasons discussed above in regard to Claim 1, Claim 11 is neither anticipated nor obvious in view of the prior art. It follows then that Claims 13 and 16, being dependent upon Claim 11, are also neither anticipated by nor obvious in view of the prior art.

Claim19 Is Neither Anticipated By Nor Obvious In View Of The Prior Art

Unlike Claims 1 and 11, Claim 19 is limited to a method comprising the steps of removal of gelcoat prior to the application of the apparatus of the invention, and the reapplication of gelcoat after the process has been completed. This is disclosed in the specification at page 3, lines 19 to 21 and page 4, lines 26 to 28. Such steps, in combination with the other limitations of Claim 19 are not disclosed or suggested in any way by the prior art. The method disclosed in the McBroom reference pertains to repairing holes in composite structures. To this end, the McBroom reference merely discloses the placing of a patch over a hole and the apparatus and bonding the patch to the surface being repaired to thereby complete the repair. In contrast, the aim of the present invention does not pertain to the repair a physical hole but to the chemical repair of the fibreglass structure underlying an outer gelcoat by extracting moisture and/or unreacted chemical compounds of the chemically damaged structure through its surface. To do this, unlike patch repair methods, the gelcoat is removed first and re-instated afterwards as a separate method step. Thus, because the McBroom reference simply does not pertain to

method involving "removing gas and vapor from the hull," as does Claim 1, there is no suggestion or teaching in the prior art to combine the unrelated steps of the McBroom reference with any steps as claimed by Applicant. This being the case, Claim 19 is neither anticipated by nor obvious in view of the prior art.

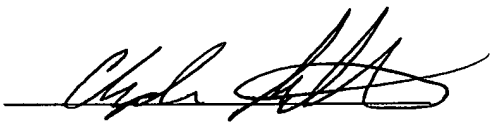
Claims 20 and 21 Are Neither Anticipated By Nor Obvious In View Of The Prior Art

Like Claims 1 and 11, independent Claim 20 requires, among other things, a partial vacuum having a pressure of between 2 and 5 mb Abs. Thus, for the reasons discussed above in regard to Claims 1 and 11, Claim 20 is neither anticipated nor obvious in view of the prior art. It follows then that Claim 21, being dependent upon Claim 20, is also neither anticipated by nor obvious in view of the prior art.

CONCLUSION

In view of the amendments and remarks presented herein, it is respectfully submitted that the application is in condition for allowance. Thus, Applicant respectfully requests reconsideration and withdrawal of the rejections to the claims.

Respectfully submitted,



Clyde L. Smith
Reg. No. 46,292
Thompson Coburn LLP
One US Bank Plaza
St. Louis, MO 63101
314-552-6338

MARKED UP VERSION OF AMENDED CLAIMS

1. (Twice Amended) A method of [treating a product having a surface, the surface of the product being of a material that was formed by a method of curing or drying a liquid after applying the liquid to the product, the method] surface treatment of a glassfibre product, the method of treating the product comprising:

positioning a layer of [impermeable material adjacent at least] gas permeable material in contact with a portion of [the] a surface of the product;

positioning a layer of [gas permeable material in engagement with the portion of the surface of the product in a space between the layer of impermeable material and the surface of the product] impermeable material in a manner such that a space exists between at least a portion of the layer of impermeable material and the portion of the surface, the layer of gas permeable material being positioned in the space];

applying heat within the space; and

removing [fluid from] gas and unreacted chemicals in a vapor state from fibre/resin layers of the product by creating a partial vacuum [by reducing pressure within the space] within the space in a manner such that the partial vacuum is in communication with all of the portion of the surface of the product that is in [engagement] contact with the layer of gas permeable material, the partial vacuum having a pressure of between 2 and 5 mb Abs.

3. (Thrice Amended) A method as claimed in Claim 1, wherein the layer of impermeable material has a peripheral edge that is configured and adapted to form an air tight seal with the surface of the product when biased against the surface by the partial vacuum and the step of removing [fluid] gas and unreacted chemicals in a vapor state from the product further comprises securing the peripheral edge of the layer of impermeable material to the surface via the partial vacuum.

4. (Cancelled, without prejudice)

5. (Thrice Amended) A method as claimed in Claim 1, wherein the creation of the partial vacuum in the step of removing [fluid] gas and unreacted chemical in a vapor state from the product commences before the step of applying heat within the space.

6. (Thrice Amended) A method as claimed in Claim 1, wherein the step of removing

[fluid] gas and unreacted chemicals in a vapor state from the product further comprises reducing pressure within the space in a manner such that the partial vacuum is maintained between the levels of 2 mb Abs and 5 mb Abs for a period of at least an hour.

7. (Thrice Amended) A method as claimed in Claim 1, wherein the product is a composite moulding of glassfibre and [at least partially cured] polyester resin and the step of applying heat within the space further comprises applying sufficient heat to cause the surface of the composite moulding to maintain a temperature between 80°C and 90°C for at least an hour, the method of treating the composite molding further comprising the step of preventing the surface of the composite moulding from reaching a temperature in excess of 90°C throughout the method.

8. (Cancelled, without prejudice)

9. (Cancelled, without prejudice)

10. (Cancelled, without prejudice)

11. (Twice Amended) An assembly comprising:

a glassfibre product having a surface that is devoid of gelcoat material;

a layer of [impermeable] gas permeable material positioned adjacent at least a portion of the surface of the product;

a layer of gas [permeable] impermeable material in [engagement] contact with [the portion] the surface of the product in a manner enclosing a space between the layer of impermeable material and the surface of the product, the layer of gas permeable material being within the space;

a heater operatively connected to the space between the layer of impermeable material and [the portion of] the surface of the product; and

a partial vacuum within the space, the partial vacuum having a pressure [that is less than standard ambient pressure] between 2 mb Abs and 5 mb Abs, the partial vacuum being in communication with the entire portion of the surface of the product that is in contact with the layer of gas permeable material.

12. (Cancelled, without prejudice)

19. (Amended) A method of treating a glassfibre reinforced boat hull, the boat hull having an exterior surface, the method comprising:

removing gelcoat from the exterior surface of the boat hull;

positioning a layer of gas permeable material in [engagement] contact with a portion of the exterior surface of the hull from which the gelcoat has been removed;

positioning a layer of impermeable material adjacent the layer of gas permeable material in a manner such that the layer of gas permeable material is positioned in a space between the layer of impermeable material and the portion of the surface of the hull;

securing the layer of impermeable material to the surface of the hull circumferentially around the space occupied by the layer of gas permeable material in a manner such that [fluid] gas and vapor can be evacuated from the space;

applying heat to within the space occupied by the layer of gas permeable material; [and]

removing [fluid] gas and vapor from the hull by creating a partial vacuum by reducing pressure within the space occupied by the layer of gas permeable material;

removing the layers of gas permeable and impermeable material from the hull; and

applying a layer of gelcoat to the exterior surface of the hull from which the gelcoat has been removed.

20. (Amended) A kit for treating a glassfibre reinforced boat hull having a surface, the kit comprising:

a layer of gas permeable material configured and adapted to be positioned in [engagement] contact with a portion of the surface of the hull, the layer of gas permeable material having a periphery;

a layer of impermeable material configured and adapted to be positioned adjacent the layer of gas permeable material in a manner such that the layer of gas permeable material can be positioned in a space between the layer of impermeable material and the portion of the surface of the hull, the layer of gas permeable material being configured and adapted such that the layer of impermeable material can not contact the portion of the surface of the hull when the layer of impermeable material is positioned over the layer of gas permeable material and the layer of gas permeable material is in [engagement] contact with the portion of the surface of the hull;

means for securing the layer of impermeable material to the surface of the hull around the periphery of the layer of gas permeable material to thereby enclose and seal the space

between the layer of impermeable material and the surface of the hull when the layer of gas permeable material is positioned in the space between the layer of impermeable material and the portion of the surface of the hull;

means for applying heating within the space; and

means for reducing pressure within the space to a level between 2 and 5 mb Abs in a manner such that [fluid] unreacted chemicals in fibre/resin layers of the hull can be extracted in a vapor state from the hull through the portion of the surface of the hull and through the layer of gas permeable material when the layer of gas permeable material is positioned in the space between the layer of impermeable material and the portion of the surface of the hull and the layer of impermeable material is secured to the surface of the hull around the periphery of the layer of gas permeable material.

22. (Cancelled, without prejudice)

23. (Cancelled, without prejudice)

24. (Cancelled, without prejudice)